

PROJECT SPECIFIC TECHNICAL SPECIFICATIONS
FOR THE PURCHASE OF
SPUN CONCRETE TRANSMISSION POLES
FOR THE SJRPP T1, T2, AND T3 ADDITION

JEA PROJECT NO: 8007818
TR NO: TR 1388
BID DUE DATE: January 24th, 2025
REQUESTED BY: Sebastian Chmist
UPDATED: December 27th, 2024

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1. SCOPE

- 1.1 This specification outlines the required information needed for the purchase, fabrication, and delivery of a Spun Concrete Transmission poles for the "SPUN CONCRETE TRANSMISSION POLES FOR THE SJRPP T1, T2, AND T3 ADDITION". This specification complements the "General Technical Specifications for the Purchase of Spun Concrete Transmission Poles", Rev 1.2".
- 1.2 This specification includes the following attachments:
 - a) Bid Form
 - b) Pole Moment Capacity Table
 - c) Pole Drawing(s), containing the configuration and hole drilling details of the pole(s)
 - d) Pole Attachment Details
 - e) PLS-POLE backup files for the pole(s), containing loading data and geometry
- 1.3 The Project Engineer (JEA) for this purchase is:

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225 North Pearl Street
Jacksonville, FL, 32202
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2. DESIGN

Structures shall be designed for the configuration, drilling details, loadings and limitations contained in these and the "General Technical Specifications for the Purchase of Spun Concrete Transmission Poles", Rev 1.2".

- 2.1 Pole Configuration: The configuration of each pole to be provided is shown in the "Pole Drawings" attachment of these specifications. The Drawings specify the dimensions of the poles, the orientation, drilling details, and attachment locations for insulators, step bolts, etc.
- 2.2 Pole Attachment Details: Details of all attachments are shown in the "Attachment Details" attachment of these specifications. These details illustrate and identify required dimensions on all the insulator attachments, step bolts, etc. that are to be provided with each pole. Attachments that support any equipment if any (transformers, streetlights, etc. modeled in PLS-POLE) need to be analyzed to determine if they can withstand the dead loads of that equipment. It is the responsibility of the fabricator to ensure that the attachments are fabricated and can withstand the loads placed on them as specified in these specifications and attachments.
- 2.3 Pole Load Data: All of the loading data for which the poles are to be designed to are included as a separate electronic attachment in the form of a PLS-POLE backup file. At the least, all the poles are being subjected to a NESC Light 60 mph wind loading, NESC Extreme 120 mph wind loading, NESC Blow Out 6PSF loading, and 60 Degree loading criteria plus applicable load factors. Load criteria is being applied from multiple directions. These loads are described in more detail in section 2.4 below.

- 2.3.1 There is one (1) PLS-POLE models with one .lca file provided as described below. There are (3) poles to be purchased in total.
 - a) One (1) PLS-POLE backup file provided for structures #1, #2, and #3 (all poles are identical)
 - 2.3.2 PLS-POLE backup file references a Vector Loads File (.lca) which contains all the loading data on the pole and the pole attachments.
 - 2.3.3 The PLS-POLE backup files also contain all the geometrical data necessary to analyze the poles with the specific loads.
 - 2.3.4 The loads shown in the Vector Loads files (.lca) include the wind loads acting on the conductors/wires, attachments, and the theoretical pole that was modeled. A wind pressure is identified for each load case within the Vector Loads file (.lca). It is the manufacturer's responsibility to apply these wind pressures onto the poles and components that it will be providing.
 - 2.3.5 In addition to the PLS-Pole backup file(s) and loading data (.lca) file(s), the required pole strengths shall at the very least meet or exceed the moment capacity diagram(s) for each pole as shown in the pls-pole back up file(s).
 - 2.3.6 See the Moment-Capacity Table(s) contained in Section 6 for clarity. The moment capacity table(s) match the same values as shown on the moment capacity diagram(s) in the pls-pole back up file(s) for each pole.
- 2.4 Deflection: Instead of the eight (8) % deflection limit described in the General Technical Specifications (section 4.1), the poles shall be designed to meet the deflection limits as identified in the load (.lca) files found within the PLS-POLE models. In general and where applicable, poles shall meet the deflection limits for the "NESC LIGHT 250 B", "NESC EXTREME 250 C", "NESC BLOW OUT 6 PSF", "60 DEG F" loading conditions, as well as several broken wire loading conditions on some dead-end structures. These load conditions are identified under the "Load Case Description" column of each pole's .lca file. On all poles, loads are provided from multiple directions including loads that result with positive offset (NA+), negative offset (NA-), and maximum structure usage (MAX). The loading condition name will be followed by a comma and a wind load direction. For example, a load case description by the name of "NESC LIGHT 250B, U NA+" identifies that this is a NESC Light 250 B loading criteria with wind normal to all spans/ structure in direction of positive offset.

3. DIMENSION RESTRICTIONS

- 3.1 Wall Thickness: All structures shall have a **minimum of a three and one-half (3-1/2) inch** wall thickness at the pole tip, and an outside total taper of not less than 0.216 inches per foot.
- 3.2 Top Diameter: The **minimum tip diameter** for all poles shall be seventeen (17) inches and the **maximum tip diameter** shall not exceed eighteen (18) inches. The Manufacturer shall notify the Owner if the strength requirements of a controlling load case dictate a greater tip diameter.
- 3.3 Minimum Bottom Diameter: The **minimum bottom diameters** of all poles shall be as described below.

3.3.1 Structure #1, #2, and #3: Forty-three (43) inches.

- 3.4 Maximum Bottom Diameter: The **maximum bottom diameters** of all poles shall be as described below. The Manufacturer shall notify the Owner if the strength requirements of a controlling load case dictate a greater bottom diameter and/or a need for a different taper.

3.4.1 Structure #1, #2, and #3: Forty-four (44) inches.

4. POLE ATTACHMENT HARDWARE

- 4.1 The pole manufacturer shall provide all step bolts, ground inserts, thru holes, threaded inserts, and a pole cap on each pole as shown in the "POLE DRAWINGS" and/or "POLE ATTACHMENT DETAILS" of these specifications. **(There are no step bolts to be provided for this request).**
- 4.1.1 Design of the threaded inserts shall be at the discretion of the pole manufacturer. Inserts shall allow standard Imperial-thread machine bolts to be attached on opposite faces of the pole. The threaded portion shall be of sufficient length, and the inserts shall be secured within the pole, such that the final installation provides at least the equivalent strength of a comparable through-bolt installation.
- 4.1.2 Pole caps shall be provided and secured on the top of each pole. Caps shall be in the shape of a cone, fabricated from steel and hot-dip galvanized. Two 1/2"-13 nuts shall be welded to the cap on opposite sides to allow attachment of ground lugs.
- 4.2 Bolts, nuts, washers and other hardware required for assembling the step bolts with the step inserts are to be provided by the manufacturer **(N/A for this bid request, there are no step bolts to be provided for this request).**
- 4.3 Bolts, nuts, washers and other hardware required for attaching insulators, cross-arms, transformers, guy wires, and miscellaneous cables to poles will be supplied by JEA and are not to be provided by the manufacturer.
- 4.4 On this project, **JEA is requesting bids for poles to be provided with threaded inserts (Option A) and with Thru Holes (Option B).** Even though JEA's preference is to utilize threaded inserts, JEA will make an exception on small projects to encourage competition for those that are not yet able to provide structural threaded inserts. If all bidders can provide threaded inserts, JEA will award the work to the manufacturer that provides the most competitive price for Option A. If one or more bidders is unable to provide threaded inserts, JEA will award the work to the manufacturer that provides the most competitive price for Option B. Please provide responses on the bid form and review the drawings in section 7. JEA is only purchasing three (3) poles.

5. DELIVERY LOCATION AND DATE

- 5.1 Delivery of all poles and hardware will be to storage areas near the job site within the JEA service area. Final discretion for delivery locations will be left to the construction contractor representing the owner. The pole(s) shall be delivered to the following area(s):

- 5.1.1 All structures shall be delivered to the JEA SJRPP Switch Yard, at 11201 New Berlin Road, Jacksonville, FL 32226. As shown below:



- 5.2 Specific directions for delivery will be provided by the construction contractor. The unloading will be done by the owner's forces and equipment or by a contractor representing the owner. The owner also reserves the right to allow a contractor representing the owner to coordinate delivery with the supplier. The supplier shall allow **four (4) hours** "turn around" time for unloading each pole. Untimely delivery, either ahead of or behind agreed upon delivery schedules, shall not be a cause for claim to the owner for any costs incurred by the Manufacturer. Freight is to be included in the bid price. **All communications regarding the delivery date/time are to be verified and approved by email with the JEA Project Engineer even if verified and coordinated verbally with the contractor representing JEA. JEA will not be responsible for any extra costs incurred by the manufacturer for delivery that was not approved by the JEA Project Engineer.**

Unless the construction contractor advises differently, pole(s) shall be delivered in order, beginning with Structure #1. The pole(s) and all associated hardware/attachments for the structure(s) shall be delivered on the following tentative dates:

- Between May 12th and May 16th, 2025.

Due to unforeseeable delays, the contractor representing the owner will update and coordinate new delivery dates with the pole supplier should they change.

6. MOMENT-CAPACITY TABLE

16 kip -120 foot pole

Distance Below Top (ft)	Zero Tension Moment Cap. (ft-k)	First Crack Moment Cap. (ft-k)	Ultimate Moment Cap. (ft-k)
5	36.75	36.75	135
10	77.25	77.25	213.33
15	84.75	84.75	241.67
20	92.25	92.25	272.5
25	110.4	110.4	305
30	135.75	135.75	378.33
35	158.4	158.4	418.33
40	182.4	182.4	460.83
45	206.4	206.4	550
50	230.4	230.4	600.83
55	254.4	254.4	653.33
60	278.4	278.4	708.33
65	302.4	302.4	768.33
70	326.4	326.4	830.83
75	350.4	350.4	896.67
80	374.4	374.4	955.83
85	398.4	398.4	1019.17
90	422.4	422.4	1081.67
95	446.4	446.4	1140.83
100	470.4	470.4	1202.5
105	494.4	494.4	1261.67
110	518.4	518.4	1320
120	0	0	0

7. POLE DRAWINGS

1) Pole Drawing:

Structure Type C1261*954S – 230kV, Single Braced Line Post, Un-Guyed, 3-Phase, with Dead

End Split Shield

Structure: #1, #2, and #3 (Option A)

2) Pole Drawing:

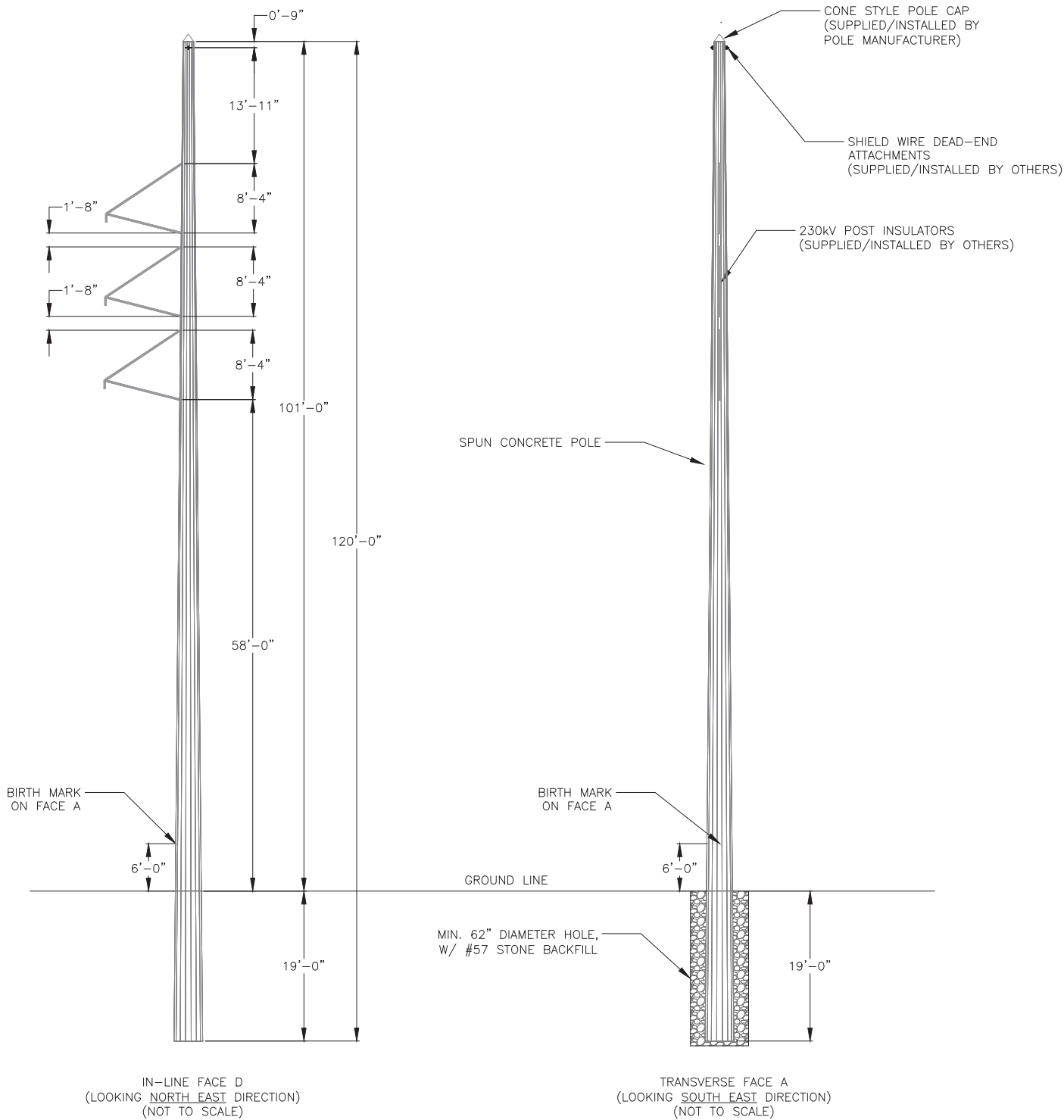
Structure Type C1261*954S – 230kV, Single Braced Line Post, Un-Guyed, 3-Phase, with Dead

End Split Shield

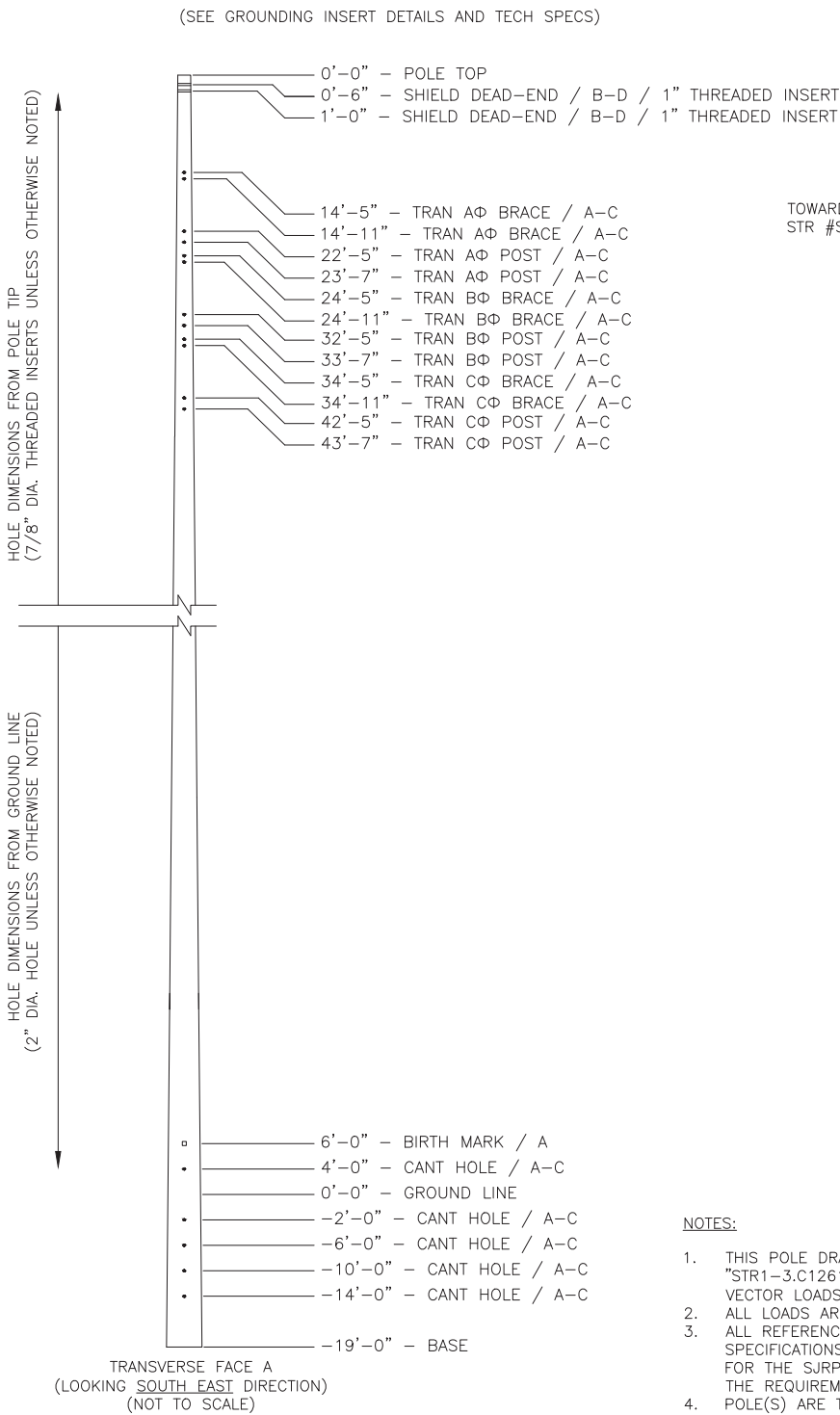
Structure: #1, #2, and #3 (Option B)

STRUCTURE TYPE
C1261*954S - 230kV SINGLE BRACED LINE POST, UN-GUYED, 3-PHASE, WITH DEAD-END SPLIT SHIELD
STRUCTURES #1, #2, AND #3

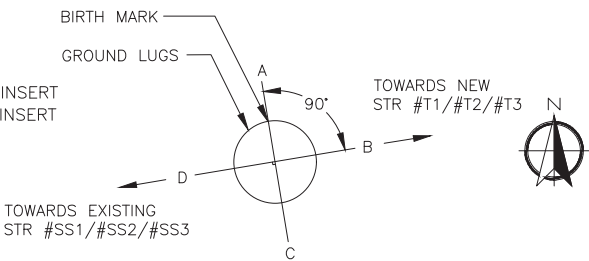
ELEVATION VIEW



DRILLING DETAIL



POLE TIP VIEW



GROUND LUG LOCATIONS

FOR	FROM POLE TOP	FROM POLE GROUNDLINE
SHIELD	1'-6"	-
TRANS AΦ	24'-1"	-
TRANS BΦ	34'-1"	-
TRANS CΦ	44'-1"	-
GROUND ROD	-	-1'-0"

- NOTES:
- THIS POLE DRAWING IS ACCOMPANIED BY A PLS-POLE BACKUP FILE NAMED "STR1-3.C1261.BAK", CONTAINING ALL THE LOADS SPECIFIED IN A REFERENCED VECTOR LOADS (.LCA) FILE FOR STRUCTURES #1, #2, AND #3.
 - ALL LOADS ARE ULTIMATE LOADS AND INCLUDE APPROPRIATE LOAD FACTORS.
 - ALL REFERENCED DETAILS ARE PROVIDED IN THE "PROJECT SPECIFIC TECHNICAL SPECIFICATIONS FOR THE PURCHASE OF SPUN CONCRETE TRANSMISSION POLES FOR THE SJRPP T1, T2, AND T3 ADDITION". POLES SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF THESE SPECIFICATIONS AND DETAILS.
 - POLE(S) ARE TO BE DESIGNED TO MEET ALL OF THE REQUIREMENTS FOUND IN THE "GENERAL TECHNICAL SPECIFICATIONS FOR THE PURCHASE OF SPUN CONCRETE TRANSMISSION POLES", REVISION 1.2, UPDATED ON 1/16/2020.

NO.	REVISION	DATE	BY	CH'D	APP'D	REVISION	DATE	BY	CH'D	APP'D	ENGINEERING	RECORD	
											STATUS	BY	DATE
											ASSIGNED	DDH	10/01/23
											DESIGNED	SMC	12/02/24
											DRAWN	SMC	12/03/24
											CHECKED	JWM	12/06/24
											APP'D	SMC	12/26/24



STRUCTURES #1-#3 (OPTION A) DRAWING
FOR THE
SPUN CONCRETE TRANSMISSION POLES
FOR THE SJRPP T1, T2, AND T3 ADDITION

SCALE: N/A PROJECT DESIGN SEGMENT 20410

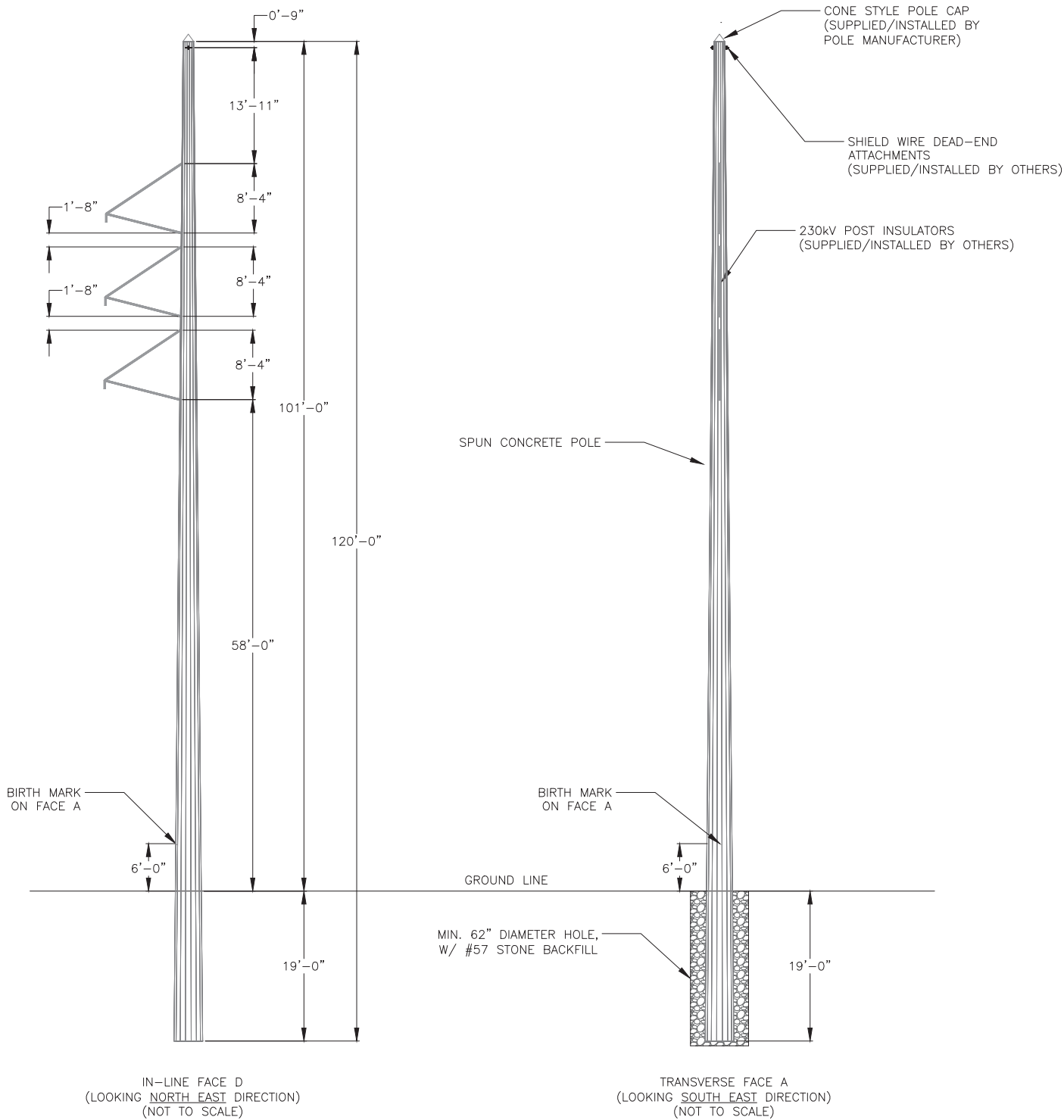
PROJECT NO.
8007818
DRAWING NO.
TR 1388-CP
SHEET NO.
1 OF 2

STRUCTURE TYPE

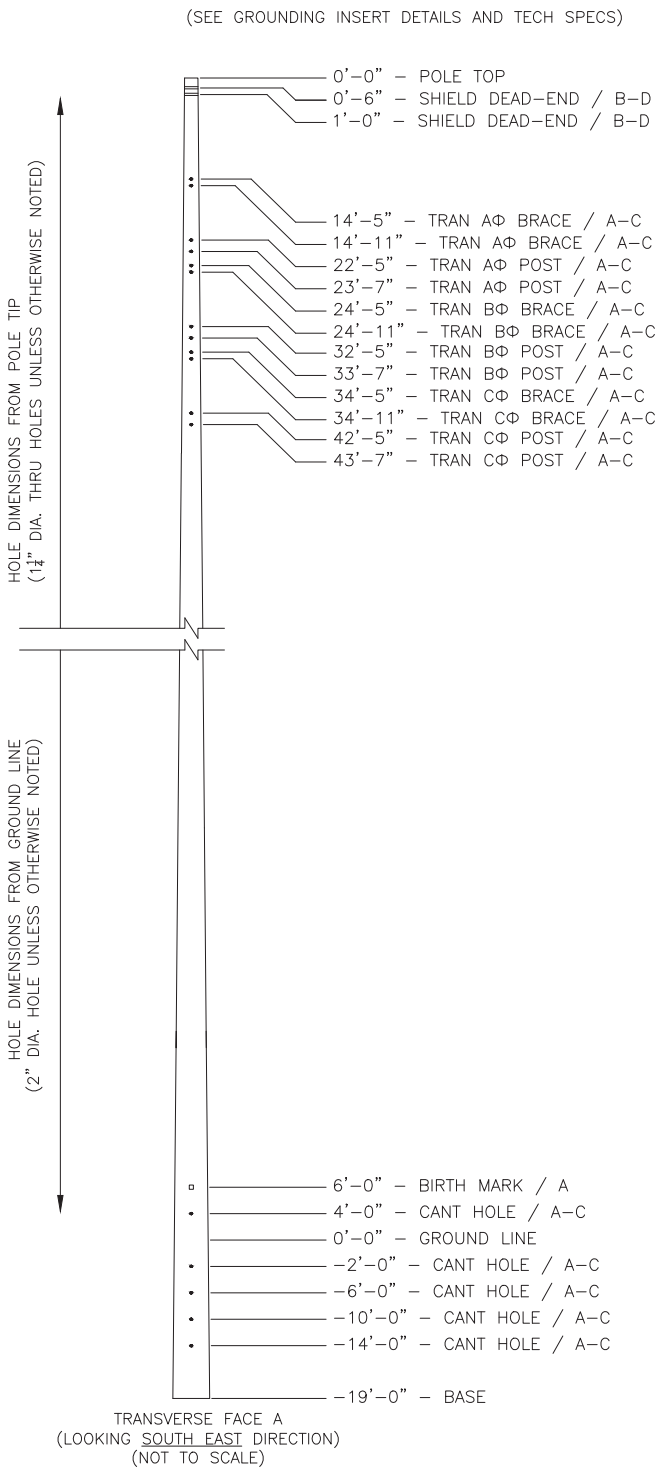
C1261*954S - 230kV SINGLE BRACED LINE POST, UN-GUYED, 3-PHASE, WITH DEAD-END SPLIT SHIELD

STRUCTURES #1, #2, AND #3

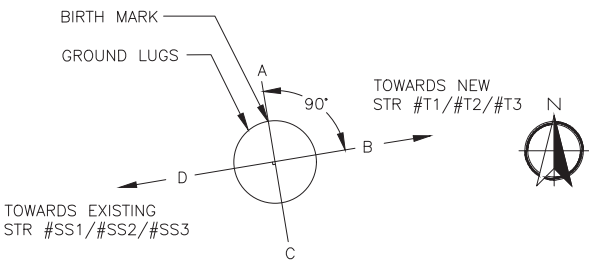
ELEVATION VIEW



DRILLING DETAIL



POLE TIP VIEW



GROUND LUG LOCATIONS

FOR	FROM POLE TOP	FROM POLE GROUNDLINE
SHIELD	1'-6"	-
TRANS AΦ	24'-1"	-
TRANS BΦ	34'-1"	-
TRANS CΦ	44'-1"	-
GROUND ROD	-	-1'-0"

- NOTES:
- THIS POLE DRAWING IS ACCOMPANIED BY A PLS-POLE BACKUP FILE NAMED "STR1-3.C1261.BAK", CONTAINING ALL THE LOADS SPECIFIED IN A REFERENCED VECTOR LOADS (.LCA) FILE FOR STRUCTURES #1, #2, AND #3.
 - ALL LOADS ARE ULTIMATE LOADS AND INCLUDE APPROPRIATE LOAD FACTORS.
 - ALL REFERENCED DETAILS ARE PROVIDED IN THE "PROJECT SPECIFIC TECHNICAL SPECIFICATIONS FOR THE PURCHASE OF SPUN CONCRETE TRANSMISSION POLES FOR THE SJRPP T1, T2, AND T3 ADDITION". POLES SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF THESE SPECIFICATIONS AND DETAILS.
 - POLE(S) ARE TO BE DESIGNED TO MEET ALL OF THE REQUIREMENTS FOUND IN THE "GENERAL TECHNICAL SPECIFICATIONS FOR THE PURCHASE OF SPUN CONCRETE TRANSMISSION POLES", REVISION 1.2, UPDATED ON 1/16/2020.

NO.	REVISION	DATE	BY	CH'D	APP'D	REVISION	DATE	BY	CH'D	APP'D	ENGINEERING	RECORD	
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											ASSIGNED	DDH	10/01/23
											DESIGNED	SMC	12/02/24
											DRAWN	SMC	12/03/24
											CHECKED	JWM	12/06/24
											APP'D	SMC	12/26/24



STRUCTURES #1-#3 (OPTION B) DRAWING FOR THE SPUN CONCRETE TRANSMISSION POLES FOR THE SJRPP T1, T2, AND T3 ADDITION

SCALE: N/A PROJECT DESIGN SEGMENT 20410

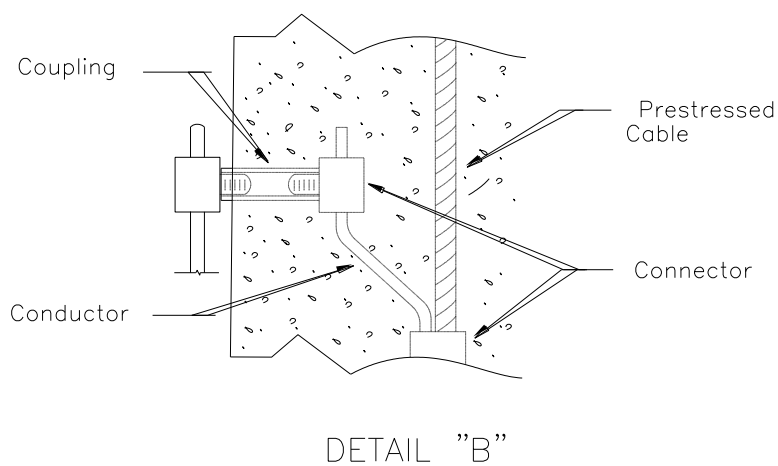
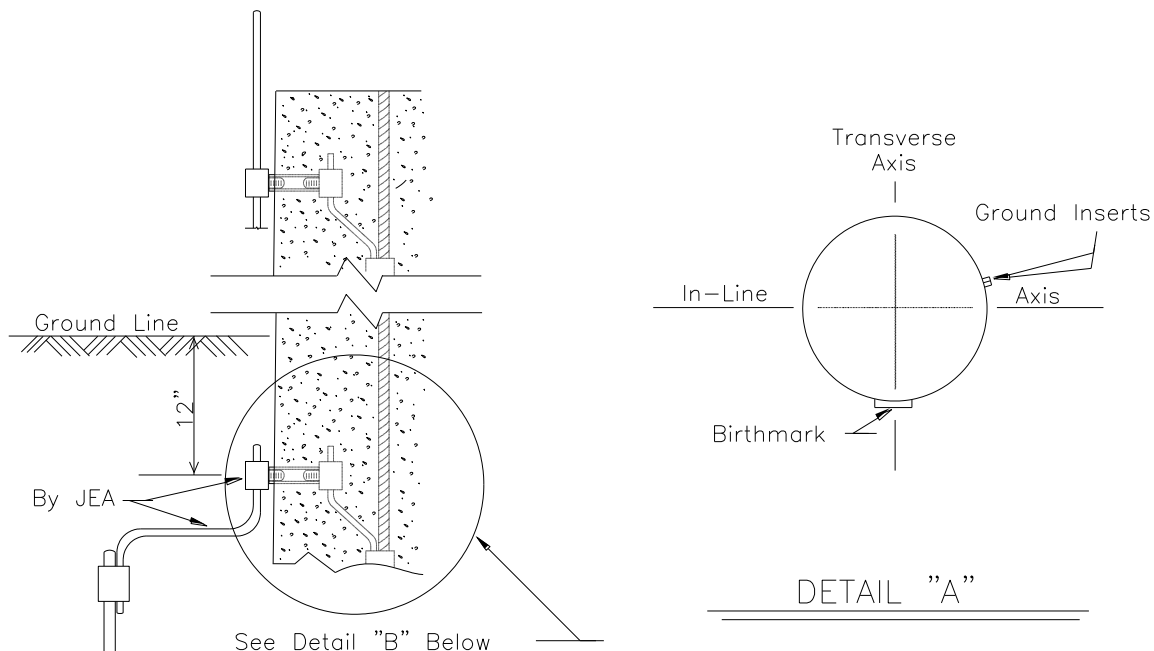
PROJECT NO. 8007818
DRAWING NO. TR 1388-CP
SHEET NO. 2 OF 2

8. POLE ATTACHMENT DETAILS

- 1) Ground Inserts Detail PGI
- 2) Cone Style Pole Cap (per spec paragraph 4.1.2)
- 3) Threaded Inserts (per spec paragraphs 4.1.1)

PGI

GROUND INSERT DETAILS



Note: Coupling and Internal Cable with Connectors To Be Furnished By Pole Manufacturer

9. PLS-POLE BACKUP FILE(S)

- 1) Structure Type C1261*954S – 230kV, Single Braced Line Post, Un-Guyed, 3-Phase, with Dead End Split Shield

Structure(s): #1, #2, and #3 (Option A and Option B)

- a. See electronically attached PLS-POLE back up file "STR1-3.C1261.BAK."